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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/689,965	10/22/2003	Henryk Malak		2061

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EXAMINER

CHORBAJI, MONZER R

ART UNIT

PAPER NUMBER

1744

DATE MAILED: 04/25/2006

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application No.

10/689,965

Applicant(s)

MALAK, HENRYK

Examiner

MONZER R. CHORBAJI

Art Unit

1744

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 22 October 2003.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-20 is/are pending in the application.
- 4a) Of the above claim(s) \_\_\_\_\_ is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-20 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☐ Claim(s) \_\_\_\_\_ are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 October 2003 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

**Priority under 35 U.S.C. § 119**

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some \* c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
  2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
  3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

\* See the attached detailed Office action for a list of the certified copies not received.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)  
Paper No(s)/Mail Date \_\_\_\_\_
- 4) ☐ Interview Summary (PTO-413)  
Paper No(s)/Mail Date. \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

### **DETAILED ACTION**

**This general action is in response to the application filing date of 10/22/2003**

#### ***Claim Objections***

1. Claims 13-14 and 17 are objected to under 37 CFR 1.75(c) as being in improper form because a multiple dependent claim should refer in the alternative form to other claims. See MPEP § 608.01(n). Accordingly, the claims 13-14 and 17 have not been further treated on the merits.

#### ***Claim Rejections - 35 USC § 112***

2. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter, which the applicant regards as his invention.

3. Claims 1-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

Instant claim 1 refers to claiming both two different classes of inventions in one claim, which result in a vague and indefinite scope of the claim. Claim 1, does not include steps as should be done when a method claim is crafted. Instead, claim 1 as it stands resembles an assembly claim. Applicant should choose between method or composition claims and should include steps if a method claim is desired. For purposes of immediate examination, instant claim 1 is evaluated as a method claim.

In claim 7, applicant should include in line 1 after "a" the following phrase "coating from the group consisting of" so that the subject matter of the claim is clear and definite. In claims 15-16 and 18-20, applicant should include the alternative form "or"

when reciting various species so that the subject matters of the claims are clear and definite. In evaluating instant claims 7, 15-16 and 18-20, the alternative form is considered.

***Claim Rejections - 35 USC § 102***

4. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

5. Claims 1-3, 5-12, 16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by Kasemo (Biological Surface Science).

With respect to claim 1, the Kasemo reference discloses a method of disinfecting implant surfaces contaminated with microorganisms (page 674, section 3.1.8. Microorganisms) that include the following: the use of surface plasmon resonance (page 669, section 3.1.3. Proteins), the use of metal nanoparticles (page 674, section 4. Surfaces, page 665, left column, page 675 left column and page 676, left column), the use of biological substance (page 667, section 3.1. Biological model systems), the use of chemical agent (page 674, section 5. Methods where sterilization necessarily involves the use of a sterilant as the chemical agent) and the use of electromagnetic radiation (page 667, section 2.6 Artificial photosynthesis).

With respect to claims 2-3, 5-12, 16 and 18-20, the Kasemo reference teaches the following: the use of biomolecule (abstract), the use of organic molecule (page 670, section 3.1.4. DNA), the nanoparticles are metals (page 674, section 4. Surfaces, page

665, left column, page 675 left column and page 676, left column), the use of titanium (page 674, section 4. Surfaces), metal nanoparticles are coated with biorecognitive material, (page 674, section 4. Surfaces, page 665, left column, page 675 left column, page 676, left column and page 662, section 2.1. Biorecognition) metal nanoparticles are not coated with material (page 674, section 4. Surfaces, page 665, left column, page 675 left column and page 676, left column), the surface plasmon resonance enhanced interaction is from metal nanoparticles having sizes is in a range of 1 nm to 20,000 nm (the definition of nanoparticles inherently implies size of about 100 nm), metal nanoparticles is a thin film (page 674, section 4. Surfaces, page 665, left column, page 675 left column and page 676, left column), the electromagnetic radiation source is a lamp (page 667, section 2.6. Artificial photosynthesis), the body treatment is tissue treatment (page 667, section 2.6. Artificial photosynthesis), the surface plasmon resonance enhanced body treatment is additionally enhanced by the presence of electromagnetic radiation (page 667, section 2.6. Artificial photosynthesis), bacterial killing is applied to pharmaceutical product for human (page 667, section 2.6. Artificial photosynthesis) and the source for generation surface plasmon resonance in the metal nanoparticles is electromagnetic radiation (page 667, section 2.6. Artificial photosynthesis).

***Claim Rejections - 35 USC § 103***

6. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the

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invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

7. The factual inquiries set forth in *Graham v. John Deere Co.*, 383 U.S. 1, 148

USPQ 459 (1966), that are applied for establishing a background for determining

obviousness under 35 U.S.C. 103(a) are summarized as follows:

1. Determining the scope and contents of the prior art.
2. Ascertaining the differences between the prior art and the claims at issue.
3. Resolving the level of ordinary skill in the pertinent art.
4. Considering objective evidence present in the application indicating obviousness or nonobviousness.

8. Claim 4 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasemo

(Biological Surface Science) as applied to claim 1 and further in view of Pedahzur

(Water Science and Technology).

With respect to claim 4, the Kasemo reference fails to explicitly recite examples of chemical agents used in sterilizing medical implants (page 674, section 5. Methods) or in marine biofouling (page 674, section 3.1.8. Microorganisms); however, the Pedahzur reference teaches that hydrogen peroxide is a known water disinfectant (abstract). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to use hydrogen peroxide as the chemical agent in the method of the Kasemo reference since when hydrogen peroxide is combined with other disinfectants, it exhibits synergistic sterilization effects (Pedahzur reference, abstract) in disinfecting water.

9. Claim 15 is rejected under 35 U.S.C. 103(a) as being unpatentable over Kasemo

(Biological Surface Science) as applied to claim 1 and further in view of Arisawa et al

(U.S.P.N. 6,906,283 B2).

With respect to claim 15, the Kasemo reference fails to teach whether its application of electromagnetic radiation for generating surface plasmon resonance is in a single-photon or multi-photon modes of excitation; however, the Arisawa reference teaches the use of both modes of excitations (columns 5-6). Therefore, it would have been obvious to one having ordinary skill in the art at the time the invention was made to modify the method of the Kasemo reference by irradiating with single-photon mode rather than multi-photon mode since single-photon mode in medical applications perform diagnosis while imposing the least possible burden on the patient (Arisawa reference, col.10, lines 33-36).

### ***Conclusion***

10. Any inquiry concerning this communication or earlier communications from the examiner should be directed to MONZER R. CHORBAJI whose telephone number is (571) 272-1271. The examiner can normally be reached on M-F 9:00-5:30.

11. If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, GLADYS J. CORCORAN can be reached on (571) 272-1214. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

  
GLADYS J. CORCORAN  
SUPERVISORY PATENT EXAMINER

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12. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).

Monzer R. Chorbaji  
Patent Examiner  
AU 1744  
04/13/2006

MRC